Case report

Gastric adenocarcinoma with prostate metastasis

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A B S T R A C T

Secondary prostatic neoplasms are rarely reported, and of those that are, the most common are metastatic tumors associated with lymphoma and leukemia. This report describes a patient with metastatic prostatic adenocarcinoma of the stomach. The patient had received subtotal gastrectomy following definitive diagnosis. Immunohistochemical staining of the specific markers was done retrospectively to determine the origin of the adenocarcinoma. In the future, when a secondary prostatic neoplasm is suspected, the stomach should be considered as a possible primary tumor site.

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1. Introduction

Prostate cancer is the sixth leading cause of cancer deaths among Taiwanese men, with adenocarcinoma being the most common type. A prostate tumor, with negative prostate-specific antigen (PSA) staining, is speculated to originate from an adenocarcinoma of the gastrointestinal tract, lung, or pancreas. Secondary prostatic adenocarcinoma is so uncommon that other origins are usually considered. We report a case of secondary prostate adenocarcinoma, which originated in the stomach.

2. Case report

A 60-year-old man was diagnosed with a right-side ureteral stone, and underwent ureterolithotripsy and double-J stenting in early October 2008. The double-J stent was removed after 1 month follow-up in the outpatient department (OPD); residual stones were not observed in the kidney-ureter-bladder image. During regular follow-up examinations, the patient complained of lower urinary tract symptoms; consequently, a fine-needle biopsy of the prostate was performed in the OPD. The pathological report showed benign prostatic hyperplasia, and medical treatment was maintained. Subsequently, gross hematuria developed, and the patient’s lower urinary tract symptoms worsened (The IPSS scored 24 in the OPD records, score 3 in the first to the fourth questions, and score 4 in the last three questions). The patient did not report any improvement in his symptoms in spite of treatment with several medicines. Approximately 2 months after his ureterolithotripsy, the patient underwent transurethral resection of the prostate. A PSA-negative adenocarcinoma was found in the pathological specimen, and then the patient was referred to our hospital for further treatment.

Computed tomography revealed a thickened gastric wall with irregular contours (Fig. 1), and a malignancy was highly suspected. The patient underwent panendoscopy with tissue biopsies (Fig. 2), and the pathological specimens revealed adenocarcinoma of the stomach.

Further diagnostic examinations were conducted in early December 2008. The patient’s serum PSA was 1.959 ng/mL; a whole body bone scan revealed multiple bony metastases; and the findings from colonoscopy were unremarkable.

In mid-December, the patient underwent subtotal gastrectomy and B-II anastomosis, and was discharged 2 weeks later. Gastric adenocarcinoma was proven from the specimens reserved for pathological analysis. The hospital where the transurethral resection of the prostate was performed had reported that specific immunohistochemical stains had been performed on the prostatic pathology specimen, revealing negative results for the presence of CD117, CDX2, and cytokeratin. The same stains were performed on the gastric specimens and produced similar negative results. Finally, mucin stain was performed, and we found a positive result in both gastric and prostatic specimens.

During the following year, the patient received additional adjuvant chemotherapy and was hospitalized several times due to poor digestion and malnutrition. The patient succumbed to this...
Fig. 1. Malignant lesion of the gastric wall as seen by computed tomography.

Fig. 2. Panendoscopy of the stomach; malignancy was suspected in areas denoted by arrows.
disease after approximately 2 years of treatment due to cachexia and malnutrition.

3. Discussion

Secondary prostatic malignancy due to metastasis is a rare incidental finding during surgery and has also been found during autopsies. Zein et al. reported that a survey of 6000 cancer patients described only three cases of secondary prostate tumors with gastric adenocarcinoma as the primary source.

Adenocarcinoma may originate from the gastrointestinal tract, prostate gland, or other glandular tissues of the body. Most secondary tumors reach the prostate by direct spread, either from the bladder (29 cases) or rectum (5 cases). Furthermore, Bates and Baithun reported that in a series of 17 prostatic metastases, the lungs (8 cases) and pancreas (2 cases) were the sites of the primary lesions. The appearance of prostatic adenocarcinoma (Fig. 3A and 3B) always has dirty necrosis content, with a cribriform cell pattern. Usually, prostatic primary adenocarcinoma stains positively for PSA (Fig. 4A), and in the absence of positive PSA staining (Fig. 4B), one can exclude the possibility of a prostatic origin. We used mucin as an immunohistochemical marker, which is positive in prostatic specimens (Fig. 5). Mucin is a marker of gastric adenocarcinoma.

Based on the clinical history and immunohistochemical characteristics of the specimens from the present case, the patient was diagnosed as having metastatic prostatic adenocarcinoma derived from a primary gastric adenocarcinoma.

Much has been reported regarding the treatment of metastatic nodules that present in patients with urological malignancies. Most studies suggest that treatment should be directed at the more aggressive lesion first, which would improve the overall survival rate, and allow a better response to the therapy for the secondary lesion.

In conclusion, secondary prostatic neoplasms are rare, and most reports of these lesions are based on autopsy findings or accidental intraoperative findings. Presently, PSA stains are not routinely performed for every transurethral prostate resection pathology section. In the present case, adenocarcinoma was proven from the pathology section, combined with the detection of other advanced metastases (bone or liver). However, the serum PSA was nearly normal, or only slightly elevated. When a secondary prostatic adenocarcinoma is being considered, a PSA stain should be performed by the pathologist. In this case, the presence of a malignant

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Fig. 3. (A) Adenocarcinoma of the prostate. Dirty necrosis content in the tumor cells was observed in addition to the cribriform pattern of the cells. (B) High-power field of the prostatic tumor. Note the adenocarcinoma cell with dirty necrosis content.

Fig. 4. (A) Prostatic primary adenocarcinoma, positive for PSA stain. (B) Prostate tumor specimen from the present case, negative for PSA stain. PSA = prostate-specific antigen.
prostatic neoplasm, combined with negative PSA-staining of the pathology section, led to further investigation and the determination of the correct diagnosis of a distant primary lesion. Mucin was used as a specific immunohistochemical marker of gastric adenocarcinoma. This information was important for the subsequent therapeutic decisions. In this case, immunohistochemical staining for specific markers was performed to differentiate the origin of the adenocarcinoma.

**Fig. 5.** Mucin stain of prostatic tumor, positive in cytoplasm (arrows).

**Conflicts of interest statement**

The authors declare that they have no financial or non-financial conflicts of interest related to the subject matter or materials discussed in the manuscript.

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**References**